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ABSTRACT

This multiple case study describes a socialization intervention program for three multiply handicapped 8-13 year-old children that was designed to teach prosocial behavior and promote generalization to non-teaching situations. Behavioral instruction procedures (such as role-play and role-play rehearsal) were used to teach peer social skills and specific procedures (including token reinforcement) were employed to encourage their display in the classroom outside of training sessions. Observational data indicated improvement in several categories of peer social behavior. Behavioral categories indicating social approach and attention from adults decreased while those reflecting social attention from peers and appropriate solitary and peer play increased. Teacher-rated data suggested increased prosocial behavior and decreased behavior problems in the classroom. The project represents a clinical demonstration of procedures that may be useful for facilitating generalization of skills to the natural environment, thereby improving peer interaction patterns. (Author/CL)

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Socialization Intervention for Multihandicapped Children: Skills Training and Generalization

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Socialization Intervention for Multihandicapped Children:

Skills Training and Generalization

ABSTRACT

This multiple case study describes a socialization intervention program for multiply handicapped children that is designed to teach prosocial behavior and promote generalization to non-teaching situations. Behavioral instruction procedures were used to teach peer social skills and specific procedures were employed to encourage their display in the classroom outside of training sessions. Observational data indicate improvement in several categories of peer social behavior. Teacher-rated data suggest increased prosocial behavior and decreased behavior problems in the classroom. The project represents a clinical demonstration of procedures that may be useful for facilitating generalization of skills to the natural environment thereby improving peer interaction patterns.

Children who fail to develop adequate peer relationships have been found to experience other significant difficulties. They are more likely to be low achievers in school, to experience learning problems and to drop out of school (cf. Wallander & Hubert, 1984). Long-term correlates of low peer acceptance are juvenile delinquency (Roff, Sells, & Golden, 1972) and psychiatric problems in adulthood (Cowen, Pederson, Babigran, Izzo, & Trost, 1973), to mention only a few. Whereas there can be many different reasons for a child becoming poorly accepted, some groups are at increased risk for this unfortunate outcome. Chief among these are developmentally handicapped children (Gresham, 1981; Wallander & Hubert, 1984), be they handicapped in intellectual capacity, specific learning abilities, or behavioral-emotional functioning.

One factor thought to contribute to handicapped children's social isolation is their already compromised status, exaggerated by special class placement. Mainstreaming was introduced in part to facilitate the social acceptance of handicapped children, although evaluations have questioned whether this alone enhances peer interaction and, ultimately, social competence of handicapped children (cf. Gresham, 1982). By the time handicapped children are mainstreamed, they often display social behavioral deficits (e.g., Bates, 1980; LaGreca, 1981; Barkley, 1981). What appears needed is some preparatory intervention, preceeding mainstreaming, by which handicapped children's social behavior can be improved such that they can take advantage of the social opportunities afforded when exposed to normal children.

Interventions have been developed with a goal of improving social behavior in a range of handicapped populations. Social skills training programs, based on a social learning model, have been implemented with mentally retarded (Kelly, Furman, Phillips, Hathorn, & Wilson, 1979) learning impaired (Tofte-Tipps, Mendonca, & Peach, 1982), socially isolated (Whitehill, Hersen, & Bellack, 1980),

and agressive (Bornstein, Bellack, & Hersen, 1980) children. Evaluations of the effects of intervention indicate that such programs generally are successful in affecting immediate improvement in the display of behaviors presumed to be prerequisites for competent peer interactions. However, typically this effect is assessed in contrived situations, such as role-play scenes or conversation sessions with familiar or unfamiliar persons. In very few cases has children's social behavior been evaluated in the natural environment to assess generalization effects. No report was found of generalization to the classroom for children with multiple developmental handicaps.

The current project was developed in response to a clinical need evident in a special class for multiply handicapped children. According to the teacher, the children in this classroom displayed low rates of positive peer interactions, rather engaging in frequent negative interchanges with peers, or contacts with the teaching staff. A developmental model of social skills, leading to positive verbal interactions with peers, was first developed based on previous literature (LaGreca & Mesibov, 1979) and observation of the children in the classroom. A behavioral program for training these skills was also constructed. In addition, a set of procedures designed to affect generalization to the classroom, outside the training context, was implemented. Limitations imposed by the clinical situation denied the opportunity for formal experimental evaluation, necessitating the use of an uncontrolled design. The value of this multiple case study lies in its clinical demonstration of a theoretically-based intervention which incorporates specific generalization procedures. Pilot data that may guide future experimental study are provided.

METHOD

Child Participants

Participants in the socialization program were five children, between the ages of eight and thirteen years, who were enrolled in a public school special

education classroom for children with multiple developmental handicaps. Participants in the current study, for whom all dependent measures were obtained, were three of these children; lack of resources disallowed the assessment of all five. These three were selected based on their approximate age equivalence and similarity in overall level of cognitive functioning. All three children obtained scores within the mildly retarded range on the WISC-R as well as academic performance scores significantly below age level. Behavioral difficulties were reported for all three children by the classroom teacher during a preliminary assessment interview.

Amber was a nine-year-old female. While she was reported as often compliant with teacher requests, she frequently provoked other children in the classroom to misbehave. In this regard, she was the classroom "leader".

Mark was a nine-year-old male with a history of physical abuse and neglect. Primary behavioral difficulties reported by his teacher included distractibility, excessive motor activity, emotional outbursts, and fecal soiling.

David was an eight-year-old male who also had a history of physical abuse and neglect, and was currently in foster care. Of the three participants, he was regarded as the most behaviorally disturbed. David was frequently off-task, seeking attention, non-compliant, and disruptive in the classroom. He often displayed verbal and physical aggression toward peers and adults. David was being considered for identification and placement in a special statewide program for severely aggressive children.

Group Leaders

The senior author and the classroom teacher led the socialization group. The teacher had been trained in special education, and had taught these children for a period of six months prior to the group. The senior author was a regular behavioral consultant to the teacher and the teacher's aide, who was an observer

of the group. The consultant was primarily responsible for program development and leadership of the group.

Dependent Measures

A modified version of Wahler, House, and Stambaugh's (1976) Ecobehavioral Assessment System (ECO) (Rojahn & Schroeder, 1978) was used to obtain direct observational data of children's behavior in the classroom. The ECO consists of 26 categories of behavior, including those emitted by the target child as well as those directed towards him or her by classroom peers and teaching staff. Each category can be scored as occurring only once in each ten second observation interval, but as many different categories can be scored as applicable. Recording is done during ten second intervals that alternate with observation intervals. A maximum of 50 intervals are scored during a 16.5 minute observation session. The system yields modified category frequency estimates.

The Eyberg Child Behavior Inventory (ECBI) (Robinson, Eyberg, & Ross, 1980) was used to assess the severity of school behavior problems. This 36-item standardized rating scale for children ages two to 12 years uses a seven-point Likert scale to assess the frequency of each problem ("Never" to "Always"), and a dichotomous scale ("Yes" or "No") to evaluate whether each behavior presents a problem. This scale thus yields two summary scores, an Intensity Score and a Problem Score, respectively. Because the ECBI was designed primarily for parents, slight modification was required for use by the teacher: three items which related to siblings and bed-wetting were excluded, and "teacher" was substituted for "parent" in two items. Reliability analyses of the ECBI indicate high internal consistency and test-retest coefficients (Robinson et al., 1980).

The Prosocial Behavior Questionnaire (PBQ) (Weir & Dureen, 1981) was also completed by the teacher for each child. This 20-item measure consists of statements about children's behavior which might be observed during the school

day. Three-point scales are used (Rarely Applies to Certainly Applies) to rate prosocial behaviors such as sharing, helping, fairness, and praise to others. A total score is obtained when the item values (0 to 2) are summed. Internal consistency and test-retest values are high for the PBQ; inter-rater reliability is moderate (Weir & Dureen, 1981).

Procedure

The study was conducted over a 12-week period consisting of three phases: baseline, intervention, and follow-up. All phases were conducted in the classroom.

Phase 1: Baseline. Baseline data were collected during a period of two weeks prior to the beginning of the social intervention program. Data consisted of teacher-rated behavior problems (ECBI) and prosocial behavior (PBQ), and direct observational data using the ECO. Observational data were obtained when a single observer sat unobtrusively in the classroom and observed one target child per session on a rotating basis. The observer had been trained to reliability in the use of the ECO and had more than two years experience using it in applied settings. While the observer was aware that a socialization program was planned, she was not knowledgeable of the specific behaviors to be targeted by the intervention. An observation session consisted of a 16.5 minute period during a non-academic activity such as free play, breakfast or lunch, or grouptime. Baseline data for each child included behavior coded during three 16.5 minute sessions. A summary score for each behavioral category was obtained when the total frequency (i.e., summed across three observation sessions) was divided by the total number of observation intervals to yield a score in terms of the percentage of intervals in which the behavior occurred.

Phase II: Socialization Intervention Program. The major purpose of the intervention program was to teach prosocial behavioral skills to the child participants. The content of the program was designed in general accordance with the recommendations of LaGreca and Mesibov (1979) who cite areas of social behavior that contribute to positive peer relationships. However, because the teacher had indicated particular deficiencies in the children's ability to carry on positive verbal interactions, skill areas relevant for verbal interactions were emphasized in the program. These included non-verbal behaviors which might precede positive verbal interactions (e.g., approach, eye contact, smile), those which serve to initiate and maintain interactions (e.g., ask a question, compliment, provide information), and skills in avoiding conflict by responding non-aggressively to others' negative verbalizations. A summary of skill areas targeted in the group training sessions is found in Table 1. The order in which skill areas were taught was guided by

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Insert Table 1 about here

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both a "natural" progression (e.g., approach and greeting behaviors may be expected to temporally precede extended conversations) and progression from relatively simple behaviors to those which were more complex.

The intervention program was implemented by group training sessions and generalization procedures. The training sessions will be described first. Twelve 30-minute sessions were conducted in the classroom over a period of eight-weeks; during most weeks, two sessions were held. A variety of behavioral techniques were used to teach the skills outlined in Table 1.

Modeling was used in several ways. At the beginning of each session two handpuppets were used to exemplify both appropriate and inappropriate behavior, and their consequences. One puppet, named "Mr. Sunshine" by the children, typically behaved in a prosocial manner (specific prosocial behaviors depended on the skill area targeted during the session) and, as a result, had many friends. The other puppet, "Goofey", was usually inappropriate and often aggressive, thus without friends. In addition to using handpuppets, the trainers modeled the skills being taught in brief role-plays, in which correct use of the skill was emphasized. Child participants also served as models for one another.

A second and major technique used was role-play rehearsal. Approximately half of each session was spent having the children practice the skill individually, while the others observed. Role-play rehearsal first involved an interaction between a child and a trainer. After the child successfully demonstrated the behavior, rehearsal took place with another child. Prompting was used as needed to cue the child for certain behaviors. Practice was continued, for any given child, until the behavioral sequence could be completed independently. Verbal feedback, praise, and stickers immediately following role-plays were used to reinforce each child's display of appropriate behavior. Reinforcement was also used to encourage "trying", and attention and participation by members of the group.

To facilitate generalization to the classroom outside of specific training sessions, three additional procedures were used: First, the training sessions were implemented in the classroom, with their classroom teacher as one of the group leaders. Therefore, potential discriminative stimuli for learning new skills were present during non-training periods in the classroom. Second, "booster" sessions were implemented every morning. As part of the daily group meeting held with the children, the teacher reviewed the skill currently being taught and encouraged the children to use it throughout the day.

Finally, after a skill was taught it was included as a behavior for which the child could be reinforced through a token system that was already a part of the classroom routine. In this way, social skills were explicitly and intermittently reinforced outside of the training sessions.

Phase III: Follow-up. Follow-up data were obtained during a three week period immediately following the completion of the training program. The ECBI and PBQ were re-administered to the teacher at the end of this phase, and each child was observed for six or seven sessions. As before, observation sessions occurred during non-academic activities.

RESULTS

Observational Data

Categories of social behavior were of primary interest in this study. The percentages of intervals in which these selected categories of behavior occurred are found in Table 2.

Insert Table 2 about here

For Amber, baseline to follow-up data indicate decreased rates of Social Approach toward Adults, Social Interaction with Adults, and Social Attention Received from Adults. As she became less interactive with the adults in her environment (i.e., the teacher and aide), she also increased rates of Social Interaction with Children, and receipt of Non-Aversive Social Attention from

Children. Amber increased substantially in frequency of Appropriate Play behavior, a change which also reflects a considerable increase in the proportion of time in Appropriate Play with Another Child as opposed to solitary play.

Mark showed a similar pattern of change with the exception that his rate of Social Interaction with Children (of a positive, neutral, or negative nature) decreased, and Non-Aversive Attention from Children increased slightly. Closer examination of his behavioral record indicated that, while Mark maintained a relatively high level of Social Interaction at baseline, frequently this was accompanied by a negative peer response. His decrease in rate of Negative Social Attention from Children, baseline to follow-up (.07 to .01), accompanied by reduced Social Interaction with Children, suggests an overall reduction in negative peer interactions.

David's data indicated a similar overall trend toward increased interactions with peers, particularly interactions involving Appropriate Play. David also increased in Social Interaction with Adults, unlike Amber and Mark. At the same time that appropriate interaction with peers tended to increase for all three child participants, rates of Social Approach toward Children remained stable. This would suggest that while rates of initiation did not increase (in fact, decreased slightly in two cases), the length of interaction tended to increase. Scores for the final category, Sustained Attention and Work, are consistent with the above data. That is, while each child increased in Appropriate Play and Appropriate Play with Another Child, the percentage of time attending to academic tasks decreased. This seems to reflect a favorable change, given that observation occurred in situations which provided an opportunity for socialization experiences.

Subjective Data

On the Eyberg Child Behavior Inventory, Amber obtained baseline and follow-up

Intensity Scores of 98 and 68 (normative M = 89; SD = 25), and Problem Scores of 7 and 2 (M = 5; SD = 6), respectively. Although improvement was reported, all of these scores fall within the normal range. Mark was also reported to improve, with an Intensity Score decreasing from 142 to 93, and a Problem Score dropping from 16 to 10. While both of Mark's initial scores were close to two standard deviations above the mean, they were within normal limits at follow-up. David also improved from pre-intervention to follow-up, but remained in the deviant range throughout, with Intensity Scores of 179 and 134, and Problem Scores of 29 and 17, respectively.

A similar pattern emerged for these children on the Prosocial Behavior Questionnaire. The reported mean score for this questionnaire is 22, with a standard deviation of 9.5. Amber improved from 10 to 27, and Michael from 4 to 30, baseline to follow-up. Thus, both increased from more than one SD below the mean to above the mean during this period. David's change in score of 1 to 8 indicated improvement, however his teacher continued to view him as displaying fewer prosocial behaviors than at least 70 percent of the children in the standardization sample, assuming an approximate normal distribution.

DISCUSSION

This case study describes an intervention program designed to target specific social behavioral deficits in three children in a special education classroom. The program illustrates the use of behavioral techniques, including modeling, role-play rehearsal, and feedback and reinforcement, to teach specific pro-social skills to cognitively and socially handicapped children. While the use of behavioral strategies to teach social skills has been documented, far fewer reports are found of the inclusion of specific procedures designed to facilitate generalization to the natural environment. Three such procedures were included in our intervention program: the children's teacher was a

co-leader during training sessions which were held in the classroom, brief daily booster sessions were held by the teacher in which the children were reminded about social behaviors, and a schedule of reinforcement for prosocial behavior was incorporated into the regular classroom reinforcement system. These procedures were expected to enhance generalization of social behavior to the classroom setting, but outside of training sessions.

Results based on observational data show a trend in the expected direction for the majority of social categories. For all three children, behavioral categories indicating social approach and attention from adults decreased, while those reflecting social attention from peers, and appropriate solitary and peer play increased. Subjective data were generally consistent with these findings. While the data obtained in this multiple case study are promising, they are clearly limited by the non-experimental design employed. Lack of control for the effects of maturation or other unknown variables precludes any definitive statements about the effect of the intervention program for these children. Similarly, the specific effect of incorporating generalization procedures as a means of facilitating the display of prosocial behavior in the natural environment is unknown. The results are suggestive, however, of the potential for interventions which incorporate generalization procedures. Other investigators are urged to explore the efficacy of this approach using a generalization assessment strategy while also employing a controlled experimental design. Additional studies are also needed to examine generalization effects beyond the special education classroom for handicapped children. Social behavior with non-handicapped peers following mainstreaming is of particular relevance.

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TABLE 1

Overview of Skill Areas Targeted in Group Training Sessions

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A. Physical Approach and Greet including Smile and Eye Contact

Example: "Hi, _____. My name is _____".

B. Greet and Initiate Interaction by Asking a Question

Example: "Hi, _____. How're you doing?"

C. Generate Topics of Conversation and Specific Questions to Initiate Conversation

Example Topics: What another liked to play, what another did after school, etc.

Questions: "What's your favorite game?"

"What did you do yesterday after school?"

D. Carry on Extended Conversation (up to 10 Verbal Exchanges) Related to a Chosen Topic

E. Invite Others to Play/Join Others in Play

Example: "Want to play with me?"

"Can I take a turn?"

F. Respond Non-Aggressively to Rejecting Verbal Responses by Others

Example: "You can't play."

"I'd like to."

"No."

"I'll play with David then."

TABLE 2

Percentage of Intervals in which Behavior Occurred

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Percentage of Intervals in Which Behavior Occurred

Category	AMBER		MARK		DAVID	
	Baseline	Follow-up	Baseline	Follow-up	Baseline	Follow-up
Social Approach Toward Adult (Aa)[a]	13	8	12	8	13	11
Social Interaction With Adult (SIa)[a]	29	12	31	13	17	26
Non-Aversive Social Attention by Adult (Sa+)	33	16	41	14	43	27
Social Approach Toward Child (Ac)[a]	7	4	7	3	6	7
Social Interaction With Child (SIc)[a]	16	27	22	16	12	17
Non-Aversive Social Attention by Child (Sc+)[a]	15	30	14	16	11	16
Appropriate Play (AP)	33	61	26	52	3	22
Appropriate Play With Child (AP/SIc)	7	22	0	9	0	7
Proportion of AP Involving Child (AP-c)	22	37	3	18	0	33
Sustained Attention (AT) and Work (W)	29	14	27	14	45	33

[a] Indicates Categories in which the quality of child's behavior may be positive, neutral, or negative.

Note: Categories in parentheses were defined in this study based on joint occurrences of ECO system categories.